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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 44

Application Number: 08/612,969
Filing Date: March 04, 1996
Appellant(s): NUSSER, DENNIS W.

Charles W. Calkins
Kilpatrick Stockton, LLP
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 25, 2003.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

The rejection of claims 1-6,9-19,21-25,27 and 28 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

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(9) Prior Art of Record

| | | |
|-----------|--------------------|---------|
| 4,669,903 | Herzog et al. | 6-1987 |
| 5,334,976 | Wang | 08-1994 |
| 4,075,679 | Christopher et al. | 02-1978 |

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-6, 9-19, 21-25, 27 and 28 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Herzog et al. in view of Wang and Christopher et al. (US 4,075,679).

This rejection is set forth in prior Office Action, Paper No. 37.

Herzog et al. teaches a keyboard having a plurality of keys which generate input signals including a plurality of numerals and letters which are arranged in "QWERTY" and "DVORAK" layouts as shown in Figs.1 and 2 of Herzog et al.

Herzog et al. fails to state or teach clearly the vertical and horizontal spacings between the keys.

However, Wang teaches an input apparatus having a plurality of keys in which a minimum center-to-center horizontal spacing in the range of 12-19 mm and a vertical spacing of 18-21 mm for the keys such as Shift, Control and Alter (Wang, the paragraph bridging cols.4 and 5 and col.5 second paragraph). Note that the spacing is obviously smaller for the alphanumeric keys 26-28 as shown in Fig.1 of Wang. Note

also that the range of widths and depths of the keys of a standard keyboard is about 12 mm which is also in the range as claimed. Christopher et al. teaches a keyboard having a full complement of alphanumeric keys and function keys as shown in the Figure (Front page). In view of the teachings of Wang and Christopher et al., it would have been obvious to one of ordinary skill in the art to modify the keyboard of Herzog et al. by providing the minimum center-to-center horizontal and vertical spacings between the input keys as taught by Wang and Christopher et al. for convenience of typing. With respect to claims 1,21,22,and 27, the selection of a desired keystroke travel range involves only an obvious matter of design choice based upon obvious experimentation. This obviousness is evidenced by the fact that Appellant recognizes that the conventional keystroke travel range is about 1.5 - 6 mm (the specification, page 10 lines 20-24). With respect to claims 6,14,18, and 25, each of the patents to Wang and Christopher et al. teaches a plurality of keys having the functions as recited.

(11) Response to Argument

On page 8, the second paragraph Appellant argues that Herzog et al. does not teach the keyboard input apparatus having small keys and /or a reduced relative spacing between keys for users having hands which are smaller than average hands and that Herzog et al. does not teach the actual size of the keys.

However, while Herzog et al. does not teach clearly the vertical and horizontal spacings between the keys, Herzog et al. teaches the simplicity of the keyboard as shown in Appellant's Figure 1 and the Alpha-Numeric core keyboard which includes QWERTY and DVORAK keys arrangements to "facilitates teaching and learning how to operate the keyboard" (Herzog et al., col.3 lines 24 and 25). While Herzog et al.

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does not teach the actual size of the keys, Wang teaches the actual size of the keys. For example, Figs. 1 and 4f of Wang show the actual width of the alphabet key 26 (Q) or 27 (W) which is 10.64 mm that is in the range of the Appellant's key width of 7.2 mm - 13 mm, and the depth of the key 26 (Q) or 27 (W) which is 8.26 mm that is in the range of the Appellant's key depth of 7.2 - 15 mm. Hence, the horizontal spacing between the keys, centerline to centerline, is 13.14 mm ($\frac{1}{2}$ width of key of 26 + $\frac{1}{2}$ width of key 27 + the distance between the keys which is appears to be $\frac{1}{4}$ width of the key $\rightarrow 5.32 \text{ mm} + 5.32 \text{ mm} + 2.5 \text{ mm} = 13.14 \text{ mm}$) which is well in the middle range of 10.8 mm to 18 mm as recited in claim 1. The same calculation for the vertical spacing between the keys 26 and 27 has a result of 10.8 mm which is well in the middle range of 10.8 mm to 18 mm as recited in claim 1. The travel range of keystroke 0.9 mm - 6 mm as recited in claim 1 is also within the key's stroke travel range of a conventional keyboard which is 1.5 mm - 6 mm as recognized by Appellant in the specification page 10 lines 20-24.

Therefore, the combination of Herzog et al. and Wang renders obvious the structure as recited in the claims.

On page 9, the third paragraph, Appellant argues that Wang, as a whole, teach away from the input apparatus as recited and does not describe, teach or suggest a fixed key input apparatus having keys for an user having smaller hands than average hands since Wang teaches a keyboard having keys which are activated by a stylus.

However, Wang teaches the keyboard having the combination of finger-actuable and stylus-actuable keys including the minimum center-to-center horizontal and

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vertical spacings between input keys within the range as claimed. While the keyboard of Wang is used with a stylus for comfortably operating the keyboard, one ordinary skill in the art would recognize that the keyboard of Wang can be operated by an user's fingers since the alphabet key 108 (Wang, Fig.4f) has a dimension of 10.64 mm (.42 in) x 8.26 mm (.33 in).

On page 10 of the Brief, the first paragraph, Appellant contends that Wang's ranges for key size and spacing of the keys do not overlap the ranges as recited in the claims since the horizontal spacing center-to-center "at least greater than a value between the range of between 12 mm (0.47 in) and 19 (0.75 in)" and the vertical spacing center-to-center range between the finger-actuable Shift key 14 and the Enter key 22 of Wang is "at least greater than a value between the range of 18 mm (0.71 in) and 21 mm (0.83 in)".

However, it is noted that the horizontal key space having a range, for example, 13 mm -- 20 mm would meets the language of Wang "at least greater than a value between the range of 12 (0.47 in) mm and 19 mm (0.75 in)" if there is no upper limit value recited in the claim since the minimum value of 13 mm is within the range of Wang as same as Appellant' value of 16.4 mm (the upper limit value recited in claim 1) which is in the range of Wang. Also, note that, as explained above, the vertical spacing between the alphabet keys is about 10.8 mm which is well in the middle range of 10.8 mm to 18 mm as recited in claim 1.

On page 11 of the Brief, the second and third paragraphs, Appellant contends that Wang does not teach the "keyboard having both key side and key spacing reduced

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for use by a person with smaller hand than average hands" since the keys such as alphabet keys are not meant to be finger-activated but for a stylus-activated.

However, while the alphabet keys of Wang are *intended* to be actuated by an operator using a conventional stylus (Wang, col.4 lines 46-49) for comfortably operating the keyboard, one of ordinary skill in the art would recognize that the alphabet keys of Wang which has a dimension of 10.64 mm (.42 in) x 8.26 mm (.33 in) can be operated by an users' fingers.

On page 13 of the Brief, the first paragraphs, Appellant contends that Christopher et al. does not teach or suggest the keyboard adapted for people having small hands.

However, Christopher et al. is cited to show the conventional small keyboard having a full complement of alphanumeric keys and function keys that include the symbols as claimed in claim 23. Note that Wang also teach a keyboard having a smaller footprint than a standard keyboard but having the same function as a PC keyboard and type-writers (Wang, col.2 the second paragraph).

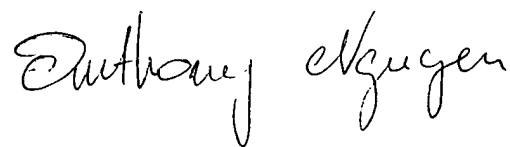
On page 14 of the Brief, the first paragraphs, Appellant contends that Herzog et al. and Wang teaches away from each other because Herzog et al. teaches the keyboard having increased spacing between keys, Wang teaches the keyboard having decreased or closed space between keys for stylus activation, and Christopher et al. does not teach or suggest the keyboard adapted for people having small hands; Appellant contends that there is no suggestion or motivation to combine the references as applied.

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Note that it is not a requirement for obviousness that the motivation to combine references be found exclusively in the primary reference. Instead, the requisite motivation to combine may stem from teachings, suggestions or inferences in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art. Obviously, one of ordinary skill in the art would recognize that the reduced size alphabet keys of Wang which has a dimension of 10.64 mm (.42 in) x 8.26 mm (.33 in) that can be operated by an user having small hands and would have found the reduced size keys as taught by Wang in Herzog et al. to have been obvious. Therefore, the argument that the alphabet keys of Wang having a dimension of 0.42 in x 0.33 in which is apparently a reduced size of a standard key cannot be operated by an users' fingers so that Wang cannot be combined with or used to modify the keyboard of Herzog et al. is not persuasive.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,


A handwritten signature in black ink, reading "Anthony Elzger". The signature is written in a cursive, flowing style with a large initial 'A' and 'E'.

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Anthony Nguyen
Patent Examiner
October 21, 2003

Conferees

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